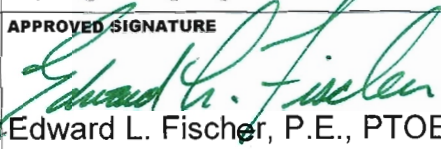




SUBJECT Median width and barrier warrant on the Interstate Freeway System	FINAL NUMBER RD08-01(B)	EFFECTIVE DATE 06/01/2008	VALIDATION DATE 00/00/0000	SUPERSEDES or RESCINDS New
	WEB LINK(S) http://egov.oregon.gov/ODOT/HWY/TECHSERV/techguidance.shtml			
TOPIC/PROGRAM Highway Design Manual	APPROVED SIGNATURE  Edward L. Fischer, P.E., PTOE State Roadway Engineer			

PURPOSE

Cross-over crashes in open medians on Interstate Freeways are occurring at an increased rate. While it has been common practice to install barrier in an open median in reaction to median cross-over head-on fatal crashes, it is now desirable to establish a standard for the installation of barriers in open medians. Adopting a standard for barriers in medians should reduce the number of Oregon's most severe crashes.

GUIDANCE

The warrant width for barrier placement in medians will be increased to reflect current trends of traffic crossing over open medians. Site specific crash data will also be utilized. This will revise Section 5.8 of the Highway Design Manual with a new bulleted item. An addition will also be made to the Interstate Design Features table of Appendix C. It does not change current policy regarding medians less than 30 feet in width.

DEFINITIONS

AASHTO American Association of State Highway Transportation Officials
The primary guidance for highway construction for all states

BACKGROUND

Investigation of median cross-over crashes on Oregon interstate highways has enabled designers to be more predictive about crash potential at specific sites. By closing certain open medians, serious head-on crashes can be prevented, thereby reducing fatal and serious injury numbers. The Department's Transportation Safety Action Plan recommends incorporating preventive measures before accidents occur.

EXPLANATION

The width of an open median, as defined by AASHTO, is measured between the inside fog lines of opposing directions of traffic. The 2006 amended warrant to close an open median, as set by AASHTO guidelines is:

- 30 feet or less in width, barrier recommended
- 30 – 50 feet in width, barrier use should be considered
- Over 50 feet in width, barrier use is optional

Median crash statistics on Interstate Highways in Oregon have indicated a higher cross-over head-on fatality rate across narrow open medians (46 – 60 feet wide) than across wider medians (64 feet or more). The ratio is approximately 2:1. There are however, still an alarming number of fatal events occurring across the wider medians, a statistic that cannot be ignored. Two criteria will be used to determine when barriers will be required in open medians: 1) By raising the minimum barrier warrant for narrow medians, and 2) for wide medians, by applying site specific crash data in accordance with the Department's Highway Safety Program Guide.

ACTION REQUIRED

Section 5.8/ Interstate Median Barrier Warrant will be added to the Highway Design Manual (HDM) to provide project teams and designers with the information they need to enact the changes. The supplemental language is included below:

HDM 5.8 supplemental subsection

- Median Barrier Warrant on Interstate Highways

For warranting median barrier on an Interstate Highway use the following:

- Any open median 60 feet in width or less shall be closed with an appropriate barrier. The median width is measured between the inside fog lines of opposing directions of traffic.
- For open medians wider than 60 feet, at specific sites with history of median penetration, apply the historic evidence identifying median cross-over potential as outlined in Section 2.6 of the ODOT Highway Safety Program Guide, which is managed by the Traffic Engineering Services Unit.

There are five barrier systems appropriate for use in the medians of Interstate Highways in Oregon. They are listed below:

Barrier Type	Test Level	TL 3 Tested Deflection	Minimum Median Width	Comments
42-inch F-Shape Precast Concrete Barrier	4	30 inches (unanchored)	8'-4"	Anchored deflection estimated to be 0 – 6 inches. Requires asphalt pad for placement.
Modified Thrie-Beam for Medians	4	20 inches	8'-4"	Installed system approximately 42 inches wide
High Tension/ Low Maintenance Cable Barrier	3, 4	Variable 6 – 9 feet	30 feet	Only system that can be placed on a 1:6 slope. Easy to maintain. Consider using TL 4 if trucks are a known problem.
32-inch F-Shape Concrete Barrier	3	30 inches	8'-4"	Is not considered tall enough to stop semi trucks.
Metal Median Guardrail	3	24 inches	24 feet	System is not adequate to stop trucks.

Median barrier should be installed on a transverse slope of 1:10 or flatter. In medians wider than 30 feet it is preferred to use cable barrier placed near the center of the median. If placed away from the center, ensure that there is enough room for deflection to the closer side. For help in determining how to install barrier in a variable median see Section 5.6 and 6.6 of AASHTO's Roadside Design Guide.

The Interstate Maintenance Design Features table of Appendix C will receive an additional Project Element shown below:

Project Element	Corrective Measure		Technical Resource
	"Have To"	"Like To"	
Open Median	Any open median 60 feet in width or less shall be closed with an appropriate barrier. The median width is measured between the inside fog lines of opposing directions of traffic.	For open medians wider than 60 feet, at specific sites with history of median penetration, apply the historic evidence identifying median crossover potential as outlined in Section 2.6 of the ODOT Highway Safety Program Guide, which is managed by the Traffic Engineering Services Unit.	Roadway Section

CONTACT INFORMATION

If you have any questions regarding these guidelines please don't hesitate to contact us.

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